

The Biologist



Vol. XXIX, Nos. 1 & 2

Dec., 1946

Phi Sigma

BIOLOGICAL HONOR SOCIETY

"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should not be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."

Mile Posts:

- 1915 March 17, Alpha Chapter organized, Ohio State University, Columbus.
- 1916 May, Central Governing Body organized, BIOLOGIST first issued.
- 1917 June, last War-time BIOLOGIST issued.
- 1921 February, BIOLOGIST revived.
- 1924 December, First National Meeting, Constitution revised, Washington, D.C.
- 1925 December, Second National Meeting, First Science Program, Kansas City.
- 1926 December, Third National Meeting, Second Science Program, Philadelphia.
- 1927 December, Third Science Program, Nashville.
- 1928 December, Fourth National Meeting, Coat-of-Arms adopted, Fourth Science Program, New York.
- 1930 January, Council Meeting, Ritual Revised, Norman, Okla.
December, Fifth National Meeting, Fifth Science Program, Cleveland.
- 1931 Phi Sigma Letters Registered, U. S. Patent Office.
- 1932 December, Sixth Science Program, Atlantic City.
- 1933 June, Sixth National Meeting, Seventh Science Program, Chicago.
- 1935 December, Seventh National Meeting, Eighth Science Program, St. Louis.
- 1937 December, Eighth National Meeting, Ninth Science Program, Indianapolis.
- 1939 December, Ninth National Meeting, Tenth Science Program, Silver Anniversary, Ohio State University, Columbus.
- 1941 December, Tenth National Meeting, Dallas, Texas.

Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - Any petitioning group must be active for at least one year before it may be granted a charter."

THE BIOLOGIST

Vol. XXIX

Denver, Colo., December, 1946

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Published by the Phi Sigma Society, an organization devoted to the promotion of interest in biological research, founded at Ohio State University, March 17, 1915. The *Biologist* is the official quarterly publication of the society, issued ordinarily in October, December, February and April, as a medium of exchange between chapters, as an interpreter of Council policies, and as a stimulus to the fellowship in science for which Phi Sigma stands.

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Directory

OF ALL ACTIVE CHAPTERS

The list of chapter officers for this school year will be found in the Chapter News section.

BETA

University of Michigan, Ann Arbor, Michigan, founded June 3, 1916.

EPSILON

University of Denver, Denver, Colorado, founded March 5, 1917.

ZETA

University of Wisconsin, Madison, Wisconsin, founded May 30, 1917.

ETA

University of Akron, Akron, Ohio, founded April 20, 1921.

KAPPA

University of Kansas, Lawrence, Kansas, founded May 31, 1921.

LAMBDA

Montana State University, Missoula, Montana, founded May 4, 1921.

MU

University of California, Berkeley, California, founded April 27, 1922.

NU

Washington and Jefferson College, Washington, Pennsylvania, founded May 11, 1922.

PI

Emory University, Georgia, founded January 3, 1925.

RHO

University of Illinois, Urbana, Illinois, founded March 28, 1925.

SIGMA

University of Florida, Gainesville, Florida, founded December 4, 1925.

UPSILON

Miami University, Oxford, Ohio, founded May 7, 1926.

PHI

University of New Hampshire, Durham, New Hampshire, founded May 21, 1926.

CHI

Montana State College, Bozeman, Montana, founded February 11, 1927.

PSI

University of Washington, Seattle, Washington, founded April 7, 1928.

OMEGA

University of Oklahoma, Norman, Oklahoma, founded March 24, 1928.

ALPHA ALPHA

University of Southern California, Los Angeles, California, founded March, 1928

ALPHA BETA

Mount Union College, Alliance, Ohio, founded May 17, 1928.

ALPHA EPSILON

University of Pittsburgh, Pittsburgh, Pennsylvania, founded March 23, 1929.

ALPHA ETA

Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma,
founded March 13, 1930.

ALPHA THETA

State College of Washington, Pullman, Washington, founded May, 1930.

ALPHA IOTA

Bucknell University, Lewisburg, Pennsylvania, founded January 9, 1932.

ALPHA KAPPA

Hunter College, New York City, founded January 8, 1932.

ALPHA LAMBDA

University of Utah, Salt Lake City, Utah, founded February 13, 1932.

ALPHA MU

University and State College of Oregon, Eugene-Portland-Corvallis, Oregon,
founded November 18, 1933.

ALPHA NU

University of New Mexico, Albuquerque, New Mexico, founded April 21, 1935.

ALPHA XI

Rhode Island State College, Kingston, Rhode Island, founded May 17, 1935.

ALPHA OMICRON

Marquette University, Milwaukee, Wisconsin, founded June 18, 1938.

ALPHA PI

University of Colorado, Boulder, Colorado, founded May 24, 1941.

ALPHA RHO

University of Arkansas, Fayetteville, Arkansas, founded May 23, 1945.

ALPHA SIGMA

University of Texas, Austin, Texas, founded February 2, 1946.





CARL WILHELM SCHEELE

Scheele, The Apothecary As A Biochemist

By GEORGE URDANG

Director, American Institute of the
History of Pharmacy
Madison, Wisconsin

* Adapted from a lecture presented before Zeta Chapter of Phi Sigma at the University of Wisconsin on January 3, 1946.

When the child Carl Wilhelm Scheele, who was to become one of the greatest chemists of all time, was born on December 19, 1742, at Stralsund in the then Swedish part of Pommerania, the term "Biochemistry" was still unknown.

It was not until the seventies of the nineteenth century that F. Hoppe-Seyler (1825-1895) used it as a synonym for physiological chemistry. Even the latter term was not employed until about the middle of the nineteenth century. What is called biochemistry or physiological chemistry today, had been dealt with since the time of Paracelsus (1498-1541), and especially J. B. van Helmont (1577-1644) and Fr. de le Boë Sylvius (1614-1672), under the name iatrochemistry, from the Greek *iaterpos* = physician, i.e., medical chemistry. In the early nineteenth century it was still this latter term, medical chemistry, which was used primarily for a branch of chemistry which then was devoted mostly to the study and analysis of the human (and to a smaller extent animal) secretions and excretions.

When in 1842 the young German pharmacist, Johann Franz Simon (1807-1843), published the epochal book in which he summarized the physiological chemical knowledge of his time,

checked and augmented by his personal investigations, he gave it the title *Physiologische und pathologische Anthropochemie mit Berücksichtigung der eigentlichen Zoochemie†* (*ανθρωπος* = man and *ζoon* = animal). If biochemistry has been meant to designate the sum total of all endeavor in the field of anthropochemistry, zoochemistry, and phytochemistry (plant chemistry, *φυτον* = plant) its extension would be almost unlimited. Since there still are, and probably will remain to be, the sciences of pharmacology dealing with the effect of drugs on the organisms of men and animals, bacteriology specializing on the study of microorganisms and employing chemical as well as histological means and methods, and finally plant chemistry as a special branch of science, the question arises whether the term biochemistry, especially if used in connection with institutions, etc., is not somewhat too all inclusive.

The man who, in 1935, published the first real history of biochemistry, the Austrian Fritz Liben, calls biochemistry "a borderland between chemistry and physiology, young as an academic discipline but dating back to time immemorial as far as scientific endeavor goes, transcending even the commonly agreed time limits of occidental culture and having played a special part in the cultural era which

† The book was translated into English by George A. Day under the title *Animal Chemistry with Reference To The Physiology And Pathology Of Man* and published in 1945 under the sponsorship of the Sydenham Society.

Oswald Spengler called the 'magic.' "

Being an alluring poetical excursion rather than a definition, this sentence is only one proof more for the vagueness of the term with which it deals. In the introduction to his book Lieben uses the term biochemistry exclusively. In the text, however, the term is employed interchangeably with physiological chemistry, and the title of the book, finally reads *Geschichte der Physiologischen Chemie* (History of Physiological Chemistry).

It almost seems as if every attempt to catch life itself with the net of human experimentation and consideration is bound to go too far or not far enough, hence to remain somewhat indefinite. In earlier times there was a generally accepted way out: the belief in the *vis vitalis*, a special life dominating and regulating principle the character and usefulness of which was but little changed by the different names (and connotations) given to it by its believers and users. Aristotle's (384-322 B.C.) "*Pneuma*," and Paracelsus' and van Helmont's, "*Archeus*" served essentially the same purpose. Still Georg E. Stahl (1660-1734) made a spiritual agens called "*Anima*" responsible for all life processes, and it was he who was successful in making the concept of a hypothetical principle of fire or inflammability called "*Phlogiston*" accepted by all chemists for about a century.

It was this world of many chemical and vitalistic theories and only a few really established facts into which Carl Wilhelm Scheele was born, and it was one of the prerequisites of his later greatness that in striking contrast to most of the chemists preceding him he refused to speculate. He subjected one substance after the other to his experimental inquiry and, putting the

right questions to the right subjects, he obtained the most surprising results in the most simple way thus becoming one of the greatest chemical experimenters the world has ever seen. In a time of window dressers, Scheele was a window cleaner. It was through his window cleaning that the view was opened into a world of progress in a variety of fields.

At the age of fourteen, Carl Wilhelm Scheele left the private school which he had attended for eight years and decided to become a pharmacist. It can be assumed that the boy's decision was influenced by the example of his late brother Johann Martin, who had been an apprentice and later a clerk to the apothecary Martin Andreas Bach in Gothenburg in Sweden until his death in 1754. It was this same master to whom Carl Wilhelm was apprenticed. During the eight years of his stay at Gothenburg (1757 to 1765) and the following three years of clerkship at the Pharmacy at the Spotted Eagle at Malmö, Scheele laid the groundwork for most of his important discoveries. Another seven years of pharmaceutical clerkship in Stockholm at the Pharmacy at the Raven (1768 to 1770) and in Uppsala at the Pharmacy at the Arms of Uppland (1770 to 1775) followed until finally the small country town of Köping offered him a business opportunity of his own. In all the pharmacies in which the clerk Scheele worked, he used every minute he could spare and every place he could find for his experiments. The first thing he did in his own pharmacy was to equip his laboratory to the limit of his small means.

It may well be said that it was the good luck of Scheele and of chemistry that he was, first and above all, a phar-

macist. Here and only here a vast variety of subjects offered themselves to his scientific curiosity. Here and only here he was given the independence of work and conclusion which he needed. It was the pharmacist Scheele who became interested in black magnesias which interest resulted in the recognition of the individuality of manganese and baryta and the discovery of chlorine. It was the pharmacist to whom the problem of Prussian blue offered itself, leading to several important results among them the preparation of hydrocyanic acid, and it was again in the pursuit of his pharmaceutical duties that Scheele was brought in almost daily contact with tartar with the result that, while still an apprentice, he discovered tartaric acid, the first of the chain of organic acids which he isolated in the course of time. The red mercuric oxide from which Scheele obtained oxygen as early as in 1771 was a much used pharmaceutical substance, and it was a typical pharmaceutical procedure, the preparation of leadplaster, which led Scheele to the observation and isolation of glycerin.

It is scarcely necessary to explain in detail the meaning of these discoveries to medicine and physiology. It is impossible to enrich genuine pharmacy, which after all represents the arsenal of medicine, without simultaneously benefiting medicine and physiological chemistry. There are some features in the work of Scheele which may serve as an illustration of this fact. It was Scheele who for the first time consciously showed that it is possible and necessary to prepare systematically the plant constituents as chemical individuals, and it is for this reason that he has been regarded as the founder of modern

plant chemistry. To medicine these fundamentals, proved and proclaimed by Scheele, meant a new era of therapy. It was on the basis of his findings and statements, and even with his so-called "wet method" used in the isolation of organic acids from plants, that about two decades after the death of Scheele another pharmacist, Serturner, isolated the first alkaloid, morphine. In obtaining oxalic acid through oxidation of sugar with nitric acid and especially in preparing hydrocyanic acid from coal, ammonium chloride and potash, Scheele set an example for the synthesis of organic compounds.

Scheele was among the first to scientifically investigate milk and albumin and the first to observe the sulfur component in protein. He obtained mucic acid by oxidation of lactose and isolated aminodicarboxylic acids, e.g., glutamic acid, by precipitating them with alcohol. He was among those who laid the groundwork to scientific analysis of urine. In analysing a urinary calculus brought into his pharmacy, Scheele found uric acid and in further investigations observed the capacity of reduction of this acid and its reaction with nitric acid which is called the alloxan reaction today. He furthermore noted the acid reaction of normal human urine. He discovered hippuric acid in human urine, and he correctly identified the so-called microcosmic salt, the sediment crystallizing out of urine, as sodium ammonium phosphate.

In his *History of Physiological Chemistry* mentioned above, Lieben refers to Scheele not less than twenty-eight times. There are only a very few men, including modern scientists specializing in this field, who are referred to more frequently.

In his investigations leading to the discovery of oxygen, Scheele tested his "fire air" as he called it not only by chemical but also by physiological experiments, using as test objects plants and various kinds of animals, such as rats, mice, leeches and bees. Finally he subjected himself to experiments concerning the capacity of certain amounts of air to sustain breathing.

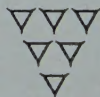
The recognition of the importance of the work of Scheele to physiological as well as to general chemistry has steadily grown in the course of time, and thus it is not amazing that the International Congress of Physiologists, when meeting at Stockholm in 1926, dedicated a medal with the image of the great pharmacist to his memory. The appointment of Scheele as an honorary member of the Société Royale de Médecine de Paris, then one of the world's foremost medical associations, in 1785 was undoubtedly due to the high evaluation of his research in the field of what would be called today physiological chemistry.

Scheele's life offers one of the very rare examples of early as well as lasting recognition of a man, neither able nor willing to sell himself, in the country of his activity. In 1774, still an apothecary clerk who had not yet passed the Swedish apothecary examination and was not even thirty-two years old, Scheele was made a member of the Swedish Royal Academy of

Science and thus received the highest scientific distinction Sweden had to offer. Later on, in 1892 and in 1912, monuments were erected in honor of the humble pharmacist who repeatedly had refused to leave pharmacy for better paying and/or socially more recognized positions, and in 1942, on the occasion of the two-hundredth anniversary of his birth, Sweden released stamps with Scheele's portrait and signature.

In 1930 an American group, the Association of American Soap and Glycerin Producers, sent to the Swedish Crown Prince a message felicitating him on the discovery of glycerin by a Swedish citizen. Today it would be almost appropriate for the manufacturers of explosives using nitroglycerin as the basis of their deadly products to do the same.

It was in 1892 that the committee for the erection of a Scheele monument at Stockholm stated in a public pronouncement that "Scheele contributed more to the development of the era in which we are living than diplomatic negotiations and pitched battles." At the present time, more than fifty years later, we are once more in the midst of "diplomatic negotiations" following "pitched battles." May the memory of men like Scheele remind ourselves and the world at large of the real values of human life and the ways to achieve them.



NATIONAL MEETING PROCLAMATION

In accordance with usage and constitutional requirements, I hereby proclaim to the chapters of Phi Sigma that the National Council has approved a National Meeting to be arranged in conjunction with the next regular winter Meeting of the American Association for the Advancement of Science.

The Meeting will be held at Boston, Massachusetts, on December 27, 28, and 29, 1946. It is the earnest desire of the National Council that each chapter be well represented.

PAUL A. WARREN
Chancellor

PROGRAM OF THE BOSTON MEETING

DECEMBER 27, 28, 1946

Friday Morning Business Session, December 27, 9:00 a.m.; Blue Room
Copley Plaza Hotel.

Friday Afternoon Business Session, December 27, 2:00 p. m.; Blue Room,
Copley Plaza Hotel.

Saturday Morning Business Session
December 28, 9:00 a.m.; Room 64,
Boston University.

Saturday Afternoon Business Session
December 28, 2:00 p.m.; State Suite
Copley Plaza Hotel.

Saturday Evening Banquet, December
28, 7:00 p. m.; Salon Room, Copley
Plaza Hotel.

Address by Dr. A. M. Keefe, St. Norbert College. "The Padre was a Biologist."



DR. R. B. GOLDSCHMIDT
Honorary President-Elect of Phi Sigma
University of California
Berkeley

Richard Benedikt Goldschmidt

By DR. R. BLANC

A complete summary of the career of Professor Goldschmidt can hardly be encompassed in the confines of a brief article, but it is to be hoped that the readers of this thumbnail sketch may nevertheless gather some impression of the personality and importance of the new honorary president of Phi Sigma. He was born in 1878 in the university town of Frankfurt am Main, Germany. As a boy, he was interested in the field of zoology and supplemented his classical education in the *Gymnasium* by attending evening classes in the sciences offered by the famous Senckenberg Natural History Society. (It may be remarked parenthetically that a description of this unique institution should be presented in the *Biologist* in some future issue.) After spending two years as a pre-medical student at Heidelberg (1896-98), he turned to the study of zoology under Richard Hertwig at Munich. He returned to Heidelberg in 1899 to complete his graduate work under the aegis of O. Bütschli. He received the Ph.D. degree in January of 1902 at the age of 24 (subject of thesis—the oogenesis, fertilization, and development of *Polystomum*). Returning to Munich, he became successively First Assistant to R. Hertwig (1903), *Privatdozent* (1904), and Professor (1909-13). Besides teaching comparative anatomy of vertebrates, parasitology, cytology, and comparative histology, he presented the first lecture course on genetics given in Germany. This course provided the basis for a book on genetics which was a standard text until

its use was forbidden by the Nazis. In 1913, Dr. Goldschmidt was invited by Th. Boveri to become a member of the newly established Kaiser Wilhelm Institute for Biological Research in Berlin-Dahlem. He became a director of this famous research institute in 1921 and retained this position until 1936, when he emigrated to the United States to become Professor of Zoology at the University of California. He has been an American citizen since 1942.

During the first decade of this century, Dr. Goldschmidt's chief research interest lay in cytological, developmental, and morphological studies of numerous animals—mastigamoeba, trematodes, cestodes, nematodes, insects, Appendicularia, and Acrania. Among his major contributions in these fields are the discovery and elaboration of cell constancy in nematodes, a complete morphological analysis of the nervous system of *Ascaris*, and a monograph on neotenic Amphioxides, with the discovery of several new organ systems in Acrania. For the past thirty-five years, he has been interested in problems of genetics and evolution, using as his chief *Versuchstieren* the gypsy moth, *Lymantria dispar*, and the fruit fly, *Drosophila melanogaster*. The majority of his contributions in these fields may be classified under four general headings: the genetic mechanism and physiology of sex determination, based on his discovery of the phenomenon of intersexuality in *Lymantria* and his balance theory of the genetics of basic sex determina-

tion; a physiological approach to the nature of gene action, culminating in his book, *Physiological Genetics*; the concept of macroevolution, i.e. the occurrence of evolution in huge jumps instead of small steps, based on a number of considerations—including his pioneer work on the genetics of geographical variation (in *Lymantria*), the nature of gene action, and the homeotic mutants in *Drosophila*—and presented in extended form in his book *The Material Basis of Evolution*; and the structure of the “gene,” a critique based on such considerations as the nature of position effect and his recent work on spontaneous mutations.

Dr. Goldschmidt is justifiably proud of his success as a teacher. He has had a large number of special students in Germany, Japan, and the United States, many of whom are now in academic positions, some of them as leaders in their own right. Witschi, Seiler, Buchner, von Frisch, and Minouchi are among the distinguished men of science who have had the benefit of Dr. Goldschmidt's scientific instruction.

In the preface to his delightful book, *Ascaris*, Dr. Goldschmidt says that “the author felt the urge to present the gist of biology, the science of life, in a form which should combine pleasant reading with accurate information.” “This dissemination of knowledge in a popular manner is a “kind of hobby” with Dr. Goldschmidt. He has written several books and magazine articles on popular science and travel. His success in this medium is evidenced by the fact that two of his four books on popular science are particularly widely read and have been translated into a

number of languages.

Dr. Goldschmidt no longer indulges in his favorite sports—soccer, tennis, skiing, and mountain-climbing—nor does he still exhibit in public his skill with the violin. Yet the broad variety of his interests never ceases to delight and amaze those who know him. I am reminded of the occasion when he invited the members of the genetics seminar, organized by his graduate students, to hold a meeting at his house on the condition that he choose the topic for the evening. Following an excellent supper at which he and Mrs. Goldschmidt displayed their usual charm as hosts, Dr. Goldschmidt proceeded to give a discourse on the principles of Japanese painting, illustrated with examples from his own collection!

No biographical sketch of Dr. Goldschmidt would be complete without a few words on his activity as a constant stimulus to scientific thought. He is never hesitant to discard traditional views and to advance new hypothesis when he feels impelled to do so by the logic of experimental evidence and analysis. Within the last few years, he has precipitated scientific controversies on the mechanism of evolution and the structure of the gene, not to speak of his recent critique of the currently accepted idea on the origin of the wings of insects. It is small wonder that he has been invited to lecture in twenty-two countries and that he is an honorary member of numerous scientific societies throughout the world. It is a great honor for us to have so distinguished a scientist as our honorary president of Phi Sigma.



November 20, 1946

To the Chapters of Phi Sigma:

In compliance with the resolution passed in 1937 I am sending this report to each chapter in advance of the National Meeting. This report of your National Secretary is for the years since our last National Meeting, (1941) which was held in Dallas, Texas, on December 31, 1941 and January 1 and 2, 1942. As usual, this report will be very brief as much of the material which might be given in detail has already appeared in numbers of the *Biologist* beginning with Volume 23, No. 3, for February, 1942.

Since our Dallas meeting two new chapters of Phi Sigma have been added to the national organization—Alpha Rho at the University of Arkansas, Fayetteville, Arkansas, and Alpha Sigma at the University of Texas, Austin, Texas. The chapter at the University of Arkansas was installed by your Vice President, Dr. Fred A. Barkley, on May 23, 1945. Alpha Sigma was installed on February 2, 1946 by Dr. Barkley and your National Secretary, Dr. A. I. Ortenburger.

During the school year 1945-46 I was invited to visit two universities where we have chapters. At the University of Kansas I was asked to speak on December 3 to the Zoological Seminar, and Kappa chapter of Phi Sigma graciously asked me to address them at their initiation banquet the same evening. On May 10 as the representative of the University of Oklahoma at the inauguration of President Wernette of the University of New Mexico, I again had the opportunity to become acquainted with members of another of our chapters, Alpha Nu. A joint public meeting of Phi Sigma and Sigma Xi was held on the evening of May 9. I spoke to this fine group after

meeting informally with Phi Sigma in the afternoon. Visits of this sort are always pleasant and definitely worthwhile from the national standpoint. I believe much would be gained if your national officers were able to visit more chapters oftener.

On a trip to Mexico late this summer Dr. Barkley and I visited several Phi Sigma friends and, acting for the officers of Alpha Sigma chapter, held two initiations in Mexico for candidates who had been elected by that chapter. Incidentally, it should be mentioned that we were *very* favorably impressed by the institutions of higher learning in Mexico as well as by the several research institutes visited. We, in this country, can learn much from our Mexican neighbors. Their cordiality and hospitality cannot be equalled anywhere.

As directed by the National Meeting at Dallas, Texas, your National Council has acted during the war years with the finest possible cooperation from the chapters. The several chapters of Phi Sigma are to be complimented for their efforts in maintaining smaller but active chapters during these difficult years. Needless to say, the number of initiations has fallen off, and the following figures are worthy of note.

For the school year of 1941-42, 660 were initiated. With the exception of 1930-31, 1931-32, 1937-38, this is the highest number initiated in any one school year. During the year 1942-43, 458 were initiated; 1943-44, 430; for the two school years 1944-45 and 1945-46, 358 in each year. The total membership of Phi Sigma numbered 13,440 at the end of the last school year.

The National Council held a meeting in Washington on March 29-30th.

of this year. Fortunately, Col A. M. Keefe, a former national officer and former editor of the *Biologist*, was able to meet with us. It was decided at this meeting that definite action should be taken concerning chapters which have either become inactive or which apparently are inactive. This action was sent to your chapter last spring. It was also decided to recommend to the chapters that Phi Sigma hold a National Meeting this Christmas, as usual at the same time and place as the American Association for the Advancement of Science. Accordingly the chapters were asked to vote on this; all votes received were affirmative. Your chapter has already been notified of this forthcoming meeting. The National Council voted unanimously to re-appoint Dr. Keefe as editor of the *Biologist*.

May I suggest that your chapter delegate and alternate when elected, as well as your chapter officers, read in the *Biologist* former reports of the National Secretary, and minutes of former National Meetings. If you do

this, we think you will better understand matters which may not otherwise be clear.

As soon as agenda are received from the several chapters, these will be compiled and the full list sent to each chapter secretary. I should perhaps mention at this time that in addition to other important business which will come before the National meeting, your delegate will have the serious responsibility of helping select a National Vice-Chancellor and a National Secretary.

You will find enclosed a copy of the report of your National Treasurer, Mr. E. H. Stewart.

I am taking this opportunity to thank the officers of each chapter sincerely for their whole-hearted cooperation. Without such fine support there would be little that your National Officers could do.

Sincerely,

A. I. ORTENBUEGER

National Secretary





YOUR EDITOR

The National Council of Phi Sigma is most happy to announce the re-appointment of Dr. A. M. Keefe as Editor of the BIOLOGIST. Because of Dr. Keefe's modesty, your National Secretary obtained the information which follows (as well as the photograph) from the Chief of Chaplains Office, in the War Department, and requested that this material be published so that members of Phi Sigma may know more about the man who is now responsible for your Society's publication.

A. I. ORTENBURGER

After more than forty-one months service in the Southwest Pacific, and a year's duty in the personnel Section of the Office of the Chief of Chaplains in Washington, D. C., Chaplain (Colonel) Anselm M. Keefe has resumed the position he relinquished in 1940 as Dean of St. Norbert College, West De Pere, Wisconsin. A chaplain since 1924, he has served consecutively in the Officers' Reserve Corps, the National Guard, and the Army of the United States.

After several years of state and national activity in the Officers' Reserve Corps, he transferred to the Wisconsin National Guard in 1939, and was assigned to the 135th Medical Regiment. With this unit and its successor, the 135th Medical Group, he served on active duty from January, 1941, until his return to the United States in August, 1945.

From the beginning of the summer maneuvers in 1941, Chaplain Keefe was practically continuously in the field, in Louisiana, South Carolina, in the U. S. A, Queensland and Northern Territories of Australia, Port Moresby and Milne Bay in Papua, Finnschafen in New Guinea, Leyte and Luzon in the Philippine Islands.

Early in his overseas service, Chaplain Keefe had the unique distinction of making the overland trip from Brisbane, Queensland, to Darwin, Northern Territory, in a jeep. Traveling in a small convoy, he saw at first hand over 2,000 miles of the little-known Australian "outback." In the Northern Territory he attended to the religious needs of both United States and Australian ground and air forces. This necessitated weekly trips, alternately north and south, between Daly Waters and Adelaide River, a distance nearly

450 miles, most of it over "bush" trails. For this service to the scattered allied forces, Chaplain Keefe was awarded the Legion of Merit by General MacArthur's orders.

Shortly after the Headquarters of the 135th was moved to Port Moresby in 1943, during the Papuan Campaign, the first outbreak of malaria struck the area. Here the Chaplain placed his teaching experience as a professor of biology in civilian life at the disposal of his Commanding Officer. In addition to his other duties, he conducted classes in malaria control for the men of his own and other units, as well as supervised the construction and maintenance of control installations throughout the surrounding areas.

As a member of several American scientific societies, his biological interest led him to send several collections of tropical insect and reptilian life to the Army Medical and the National Museums in Washington, D. C. Many of these specimens have since proved to be hitherto unknown.

When the 135th was transferred to General Krueger's Sixth Army in 1944, it ceased to conduct forward base installations and functioned in the field in support of combat units. As a result, Chaplain Keefe was in almost daily contact with the sick and injured close to the front lines. The scattered locations of many of the hospital companies in Leyte and Luzon necessitated difficult, and sometimes dangerous, travel by jeep into nearly every part of these islands. During the months of April to June, 1945, Chaplain Keefe traveled over 8,000 miles and visited over three thousand patients on Luzon alone. He holds the Bronze Star Medal for service in the Northern Philippines campaign.

Among the units served by the 135th, he will be remembered by sick and injured men of the 12th Cavalry and 158th Infantry combat teams and of the 6th, 11th Airborne, 24th, 32nd, 33rd, 37th, 38th, 40th, 41st, and 43rd Divisions as well as their supporting troops.

Recent scientific publications have carried two popular releases regarding Dr. Keefe. One resulted from a chance conversation with a group of scientist friends at the Cosmos Club in Washington, and dealt with Chaplain Keefe's clocking the speed of a hopping Kangaroo on the cross-country Australian trip mentioned above. By adjusting the speed of his jeep it was found that one large male Kangaroo, in flight, could maintain a speed of twenty-five miles an hour for at least five minutes.

The more recent distinction came as the result of the publication of an article in the September 15th issue of the Journal of the Washington Acad-

emy of Science by King and Hoogstraal on three new species of *Aedes*, the yellow-fever mosquito. One of these collected near K. B. Mission, Milne Bay, Papua, in October, 1943, was turned over to the 19th Medical General Laboratory, United States Army, and has now been named for its collector, *Aedis keefe*.

When asked his opinion of the various places in which he had served, Chaplain Keefe frankly admitted that he is still enthusiastic about the Australians and their country, even the most uninhabited parts of it. He says that he can easily understand the liking former service men had for Luzon before the war came to ruin it. He is still interested in Papua and New Guinea, but mostly from a scientific angle. As for Leyte, the Chaplain heartily concurs in the vigorous, if unprintable sentiments of nearly every GI who fought or served there.



Chapter News Letters

Beta

—University of Michigan

As was the case with so many of the other chapters, the war took something of a toll in Phi Sigma activity here on the Michigan campus. We have staged somewhat of a comeback, however, and only tonight wound up a reasonably successful spring semester with the initiation of about thirty new members. This was the second initiation this spring, the other having been held in March at which time approximately twenty-five new members were initiated. The season's activities, apart from the regular business meetings consisted of four lectures open, as is our custom, to the public. Dr. Elzada U. Clover of the Botany Department spoke on her botanical explorations in the Southwest, a delightful talk illustrated with excellent color slides. In May, Dr. Clarence H. Kennedy of the Department of Zoology and Entomology at Ohio State came to Ann Arbor and gave us two excellent illustrated lectures, one on the "Evolution of the Family from the Society" and the other—"The Evolution of Human Transportation as Shown by the Evolution of the Automobile." This latter talk, sponsored jointly by the Beta Chapter and The Graduate Student Council, was a rather unique presentation of the Darwinian theory of evolution. Later in May, Dr. E. C. Case, Professor Emeritus of Paleontology, gave a most interesting and highly delightful talk composed primarily of reminiscences of many years on the Michigan campus and philosophical ob-

servations on the ways and means of our present scientific efforts. This talk was entitled "The Torch and the Tin Can" and you might well assume from the title that it was a highly entertaining dissertation. This talk was mimeographed for distribution among members of the chapter and other of Dr. Case's friends who were not able to be present. I thought it a highly desirable paper for the *Biologist* and approached Dr. Case with that in mind. He declined, however, feeling that it was of too local an application for such a publication and because press of other work kept him from revising it.

Our initiation talk, given tonight, was a beautifully illustrated lecture on Guatemala by Dr. Lawrence S. Stuart, Asst. Professor of Zoology and Research Associate of the Museum of Zoology and the Cranbrook Institute of Science. Dr. Stuart, as you may know, has done considerable work on the Amphibia and Reptilia of Central America and teaches a course in zoogeography here at the university.

We had one other quite interesting demonstration by one of our present active members, Dr. Curt Benjamin, medical statistician at the University Hospital. He demonstrated the intricacies of the International Business Machines to a group of about forty people from the general public and the chapter and showed the use of these amazing machines in biological statistics and research work.

By a conservative personal estimate, I believe we had approximately 500 people in attendance at these various lec-

tures. The present active membership of the chapter is approximately 75. I am giving you so many "approximate" figures because our Secretary has just recently left for an expedition to Alaska with the U. S. Geological Survey. It may be that he has already sent you information as to our activities this spring and, if so, I beg your forgiveness at the repetition.

The present officers of the chapter are as follows: Mrs. Elizabeth Jalosky, Vice President, Mr. Rodgers D. Hamilton, Secretary, Miss Mary Alexander, Treasurer, and myself, President.

Chapter activities usually lapse during the summer months, but we are hoping for a flying start in the fall and a continuance of what appears to be an upsurge of Phi Sigma activity on this campus. We have long realized the difficulties in maintaining interest in such a society in competition with the many other graduate and faculty research organizations in a large, cosmopolitan university such as Michigan. We feel that a partial solution to this is more informal and social group activity in the nature of field trips, picnics, etc., and are planning to organize some of these in the fall.

ROBERT O. BEATTY

President.

Epsilon

—University of Denver

President—John Robertson, 670 S. Washington, Denver, Colo.

Vice-President—Robert Melzer, 1200 S. Gaylord, Denver, Colo.

Recording Secretary, Corresponding Secretary—Norma Moe, 906 S. Vine, Denver, Colo.

Treasurer—Henry Cochrane, 1320 S. Lafayette, Denver, Colo.

On April 11, 1946, Epsilon Chapter

initiated the following new members: Martin Bischoff, Jr., Henry Cochrane, Walter Ford, Winthrop Kimball, Norma Moe, Robert Melzer, Robert Quimby, John Robertson, Dr. Frederick N. Zeiner, Dr. Helen Marsh Zeiner.

Following the initiation the research papers of a few of the new initiates were presented. The titles are as follows: A Circulatory Aromaly in the Cat; The Effects of Cold in Anesthesia; Maintenance of Pregnancy in the White Rat; Botanical Survey of Angel Mounds Site.

Mr. Orville Rice, a guest of another chapter and an artist in the biological field, especially ornithology, presented a group of his water colors of local birds.

We held a dinner meeting on May 16 in honor of our retiring sponsor, Mrs. Frances Becker. Dr. John W. Ames, an honorary member, gave an address on "The Implications of Socialized Medicine." The election of officers was held.

The new sponsor of Epsilon Chapter is Dr. Frederick Zeiner.

NORMA MOE,

Secretary.

Zeta

—University of Wisconsin

President—Robert I. Brawn, 203 Genetics Bldg., University of Wisconsin.

Vice-President—Toge S. K. Johansson, 406 Biology Bldg., University of Wisconsin.

Recording Secretary—O. H. Calvert, 210 Moore Hall, University of Wisconsin.

Corresponding Secretary—Jesse M. Scholl, 67 Moore Hall, University of Wisconsin.

Treasurer—Lionel Dessureaux, 67 Moore Hall, University of Wisconsin.

Eta

—University of Akron

President—Margaret Grismer.

Vice-President—Mary Lewis.

Recording Secretary—George Anastos.

Corresponding Secretary — Charles Casto.

Treasurer—

Since our last chapter report in the May, 1944, issue, a condensed resume of our subsequent, continuous existence, will be recorded here.

In June, 1944, Mary L. Buckmaster and Robert Boehme were initiated, while Doris Dudich and Margaret Grismer were pledged.

During the school year 1944-45, Rae Dewey, graduate assistant in zoology, was president, replacing Thelma Crawford who left for graduate work in botany at Cornell. In November Doris Dudich was initiated, and in February Margaret Grismer, Mary Lewis and Glen Black were initiated, and at the same time the following were pledged: Charles Casto, Alice Kinney, Ruth Beers, Doris Lancaster, Jean Malaney, and Mary Steinmetz. Then in June after the close of the semester Margerie Brett, Heraldine Heminger, and Jimmie Mann were pledged.

During the school year, 1945-46, our president was Margaret Grismer, Vice-president and Treasurer, Charles Casto, and Secretary, Donald McGaughey, '42, returned from army service, who, however, left in the second semester to continue studies at California. In a spring meeting in March, Mildred Rasneor was initiated as a faculty member and Jimmie Mann as active member, together with Martha Stoler and Bill Meese as pledges.

One of the program meetings, a new experience for most of us, was a demonstration of the electron microscope, for a group who visited the research laboratory of the Firestone Tire and Rubber Co., and another group at the B. F. Goodrich Co.

DDT and its common uses, was the topic discussed at an evening meeting by Dr. Walter C. Kraatz, our faculty advisor.

And in June, 1946, Bill Meese was elected to membership and Edward Georgeoff, David Lowery, Norma Unamsky, and Betty Enderlein were pledged.

Now for the school year of 1946-47, our officers are Margaret Grismer, President, Gus Dycus, Vice-President, Jimmie Mann Looney, secretary, and Aubrey Allman, Treasurer. They are now graduate students, Dycus and Allman being returned servicemen.

Kappa

—University of Kansas

President—Waldo Holt, Phi Beta Pi House, Lawrence, Kansas.

Vice-President—Joseph Reid.

Recording Secretary, Corresponding Secretary, George T. Brooks, Entomology Dept., University of Kansas.

Treasurer—Edwin Galbreath, Dyche Museum, University of Kansas, Lawrence.

Lambda

—Montana State University

President—Jack E. Schmantz, Box 33, Missoula, Mont.

Secretary—Patricia Dehnert, 501 University Ave., Missoula, Mont.

Nu

—Washington and Jefferson College

President—A. L. Grasmick, ATO House, 237 E. Bean Street, Washington.

Vice-President—M. Kochman, 55 W. Prospect Ave., Washington.

Secretary and Treasurer—John S. Van Kirk, 166 S. Wade Avenue, Washington.

Nu Chapter of Phi Sigma Society held its first fall meeting at 4:30 P. M., Friday, October 11, 1946. Election of officers was conducted and Albert Louis Grasmick holds the position of Chapter President. Marvin Kochman was elected vice-president and John Van Kirk fills the positions of Secretary and Treasurer. Other business brought up was discussion and preparation for a fall initiation of new members.

Two of our members, Jack Harrison and Meade Mertland, spent a very interesting summer at Woods Hole, Massachusetts.

Rho

—University of Illinois

President—William F. Rapp, Jr., 203 Harker Hall, Urbana, Ill.

Vice-President—Susan L. Cartwright, 345 Natural History Bldg., Urbana, Ill.

Recording Secretary, Corresponding Secretary—Roma A. Gould, 207 Harker Hall, University of Illinois.

Treasurer—Gertrude M. Hirsch, Physiology Dept., University of Illinois.

Sigma

—University of Florida

Recording Secretary, Corresponding Secretary—Randolph T. Wedding, Food Products Laboratory, University of Florida, Gainesville, Fla.

Upsilon

—Miami University

President—Charles Lee, East Chestnut, Oxford.

Vice-President—Etta Donahue, 86 Wells Hall, Oxford.

Recording Secretary—Sandra Smith, 4 Tallawanda, Oxford.

Corresponding Secretary—Julia Schneider, 58 Wells Hall, Oxford.

Treasurer—Sarah Llevinger, 86 Wells Hall, Oxford.

At previous meetings, Dr. Shideler, professor of Geology and head of the Department, gave an interesting lecture, "The Birth of a Volcano," illustrated with film taken while he was down in Mexico. Dr. Boesel, professor of Zoology, gave a talk on birds common to Southern Ohio and the seasons in which they are most abundant.

The fall program includes several lectures and the annual initiation and banquet which is being held late this year.

SANDRA SMITH,
Secretary.

Chi

—Montana State College

President—Ann Aikens, Quad F.

Vice-President—Helen Matt, Quad B.

Secretary—Lida Loffel, Quad F.

Treasurer—Bill Reiquam, Apt. 1, Evergreen Apts. (All of Chi Chapter are at Bozeman, Mont.)

Omega

—University of Oklahoma

President—Yvonne York, 517 So. Lahoma, Norman.

Vice-President—W. McWhirter.

Recording Secretary, Corresponding Secretary—Virginia Dodson, Pi Beta Phi House, 702 S. Lahoma, Norman.

Treasurer—Rosalie Rayburn.

Alpha Alpha

—University of Southern California

President—Joseph Comstock, 807 S. Inglewood Ave., Inglewood, Calif.

Vice-President—John M. Pierson, 236 23rd St., Santa Monica.

Recording Secretary—Labrie Ritchie, 1214 Arlington, Los Angeles 7, Calif.

Corresponding Secretary—Lucille Schulte, 620 W. 35th Place, Los Angeles 7, Calif.

Treasurer—Arnold C. Von Der Lohe, 4677 Arlington Ave., Los Angeles 43.

Our first meeting for 1946-47 was held June 14, 1946, at 7:30 P. M., in Room 145, Allan Hancock Foundation. Our speaker was Dr. Frank Baxter, Chairman of the English Department at the University of Southern California. Those of you who have heard Dr. Baxter speak on other occasions need no further introduction; those who have not, will be delighted with this most inspiring speaker.

Some of you undoubtedly wondered about the delay for the May dinner meeting. The Ladies of the Bethel Lutheran Church were having a special Missionary Program the entire second week in May; that and Medical School examinations seemed to indicate the third Friday instead of the usual date. We are sorry if you were inconvenienced by the rather late change of date.

At the ceremony preceeding the dinner the following were initiated into Alpha Alpha Chapter: Mr. Alfred Beresford, Mr. William Brandt, Mr. Richard Costello, Mr. Merle Edgerton, Mr. Richard Lyon, Mr. Reginald McCullough, Mr. Robert McElroy, Mr. Robert Nogler, Mr. Brazil Panzer, Mr. Richard Swinger, Miss Hazel Toy, Miss Lois Wong, and Miss Elizabeth Wright.

Despite deviations, the Ladies of the Church prepared another of their ex-

ceptionally fine dinners for us: the room was decorated with garden flowers. Following dinner President Morreale presented the new members to the group. Then the outgoing officers installed Mrs. Labrie Ritchie as Recording Secretary, Miss Lucille Schulte as Corresponding Secretary, Mr. Arnold C. von Der Lohe as Treasurer, Mr. John M. Pierson as Vice-President, and Mr. Joseph B. Comstock, Jr., as President. Mr. Comstock took the Chair and presided.

President Comstock presented our speaker, Dr. J. Webb, of the Department of Pharmacology of the University of Southern California School of Medicine. It had been announced that Dr. Webb would speak on his Research Work. We waited expectantly, for very few of us knew anything of his work. We were very pleasantly surprised when Dr. Webb announced that he would speak on *The Duckbill Platypus* rather than Sulfonamide, Penicillin or Streptomycin, the subjects of his research!

Although we had all heard of this classical example of an evolutionary relic, we were delighted with the intimate presentation which followed.—“The first information dates back to November, 1797, when a hunter and trapper in New South Wales, Australia, found one of these queer little animals, called water moles, in one of his traps in a lake. The specimen was collected and the skin sent to the Royal Society in London where it was rather ignored; it was then sent to the British Museum where Dr. Shaw attempted to verify it!—It seems that the Orientals, always quick to learn, had discovered the value of new specimens and had created endless confusion by manufacturing a new, incorrect nomenclature, named *Ornithorhynchus anatus*.

Later an entire animal was shipped to England. It was then discovered that there was no uterus and no mammary glands; reports from Australia stated that the animal laid eggs! Great confusion resulted. The Platypus was observed to be a water animal and only poorly adapted to terrestrial life. It is a fine diver; this ability may serve as a means of escape or be part of a play performance. The bill is adapted for feeding along the bottoms of streams and lakes where invertebrates and mud, which aids in chewing, are shoveled. The jaw bones are not fused so that it is possible for the animal to 'pucker' its mouth for the intake of food. The eyes and ears are in grooves alongside of the head; these are covered by a flap when the animal is under water. The branch of the trigeminal nerve of the muzzle is very large; it ends in pits and pores over the surface of the muzzle where the sense of touch is important in foraging for food."

Alpha Beta

—Mount Union College

President—Virginia Archer, 304 McKinley St., N. Canton, Ohio.

Vice-President—Peggy St. Clair, 1382 E. 105th St., Cleveland.

Recording Secretary—Mary Betty England, 525 W. Cambridge, Alliance, Ohio.

Corresponding Secretary — Barbara Firestone, R. D. No. 3, Canton, Ohio.

Treasurer—Mildred Glauser, 2105 S. Arch St., Alliance, Ohio.

Alpha Lambda

—University of Utah

President—Irving W. McNulty, 135 S. 7th St., Salt Lake City, Utah.

Vice-President—Calvin McMillan, 221 East 48th St., Murray, Utah.

Secretary—Sheila Woolsey, 828 E. 1st South, No. 3, Salt Lake City.

Treasurer—Jack Barryman.

The library, in memory of Phi Sigma members who lost their lives in the war, will be made a part of the regular library. It has accumulated approximately \$315 of gifts since it was established in May, 1945.

At the October meeting an interesting film on "The Life History of the Mexican Fruit Fly," was shown.

On November 5th, a meeting was held at the home of Dr. and Mrs. Ralph V. Chamberlin, in honor of Dr. Elmer Berry of the U. S. Public Health Service. Many members and friends of Phi Sigma were in attendance.

Eleven new members were initiated into Alpha Lambda Chapter on December 14, 1945. The new members are: Esther S. Craighead, Virginia Danklefs, Helen Edwards, Beverly Hayes, Tom Kono, Don Merkley, Thomas Parry, Ernest Roscoe, Sheila Woolsey, and Robert Pendleton. Dr. W. W. Newby lectured on "Pure and Applied Science."

In the January meeting, four returned veterans and members of Phi Sigma, Charles Richards, Bill McNulty, Dr. Albert Grundman, and Arden Gausfin, spoke on their experiences during their war services.

In February, Robert Pendleton spoke on "Some Natural History Notes of the Solomon Islands."

The annual banquet was held March 22. Dr. Walter P. Cottam, who returned from England at the beginning of the spring quarter, was the principal speaker. Dr. Ralph V. Chamberlin, head of the Biology Department, was presented with an honorary membership in Phi Sigma, in recognition of his many years of outstanding service, leadership, and research.

Dr. C. E. Dibble, of the Anthropology Department, spoke on "The Meaning of Figurines" at the April meeting. Harold Stark, Robert Gering, and Walter Woodbury were pledged at this meeting, and were initiated May 2, 1946.

The new officers of Alpha Lambda Chapter are: President, Irving W. McNulty; Vice-President, Calvin McMillan; Secretary, Sheila Woolsey; Treasurer, Jack Berryman; Historian, Beverly Hayes. George Edmunds was made Faculty sponsor.

The "Newsletter" which has been a monthly paper put out by this chapter during the war, has been made a joint effort on the part of the chapter and Biology department. It will be issued quarterly. The main feature will be short abstracts of publications or work by the staff, students, and alumni, and to keep alums informed of activities of the Biology Department.

A field trip has been planned for the first part of June. The primitive area in the southeast part of the state is the proposed destination. Side trips to Arches National Monument and to the Goosenecks of the San Juan River are proposed. Plans are also being made for monthly canyon meetings throughout the summer.

New publications by members of the Department include: "A New Texan Lithobius" by Dr. R. V. Chamberlin; "Notes on Mosquito Migration," by Don M. Rees; "Supplemental Notes on Mosquito Fish in Utah," by Dr. Rees; "Studies on the Protozoa of Utah," by Ernest J. Roscoe; "The Utilization of Fish by a Mosquito Abatement District; Their Effectiveness and Limitations," by Don M. Rees.

SHEILA WOOLSEY,

Secretary.

Alpha Mu

—University and State College of Oregon

President—Alvin R. Aller, 826 S. 11th St. or Dept. of Zoology.

Vice-President—Dr. Herman Scullen, Dept. Entomology.

Recording Secretary, Corresponding Secretary, Treasurer — Marguerite Cook, 434 S. 11th St.

Alpha Omicron

—Marquette University

President—Lorraine A. Sievers, 450 N. Pinecrest, Milwaukee 13, Wis.

Vice-President—Eugene Kitzke, 2406 S. 19th St., Milwaukee 7, Wis.

Recording Secretary—Leo C. Massopust, Jr., 2931 W. 46th St., Milwaukee 10, Wis.

Corresponding Secretary—Mary Ann Swaebly, 737 N. 32nd St., Milwaukee 8, Wis.

Treasurer—O. A. Joseph Gillan, 4632 W. Medford, Milwaukee 10, Wis.

Alpha Pi

—University of Colorado

President—Jean Cross, 1052 12th Street, Boulder, Colo.

Secretary—Virginia Yeater, 891 18th Street, Boulder, Colo.

Alpha Rho

—University of Arkansas

President—Pat Poindexter, Delta Delta Delta, Fayetteville, Arkansas.

Vice-President—Irving Rothrock, 306 W. Lafayette, Fayetteville.

Secretary and Treasurer—Mrs. R. H. Boon, 317 N. College, Fayetteville, Arkansas.

Alpha Sigma

—University of Texas

President—Willard Lewis, 2711 Bowman Rd., Austin 21, Tex.

Vice-President—Shirley Scott, 1701 Hartford Rd., Austin, Tex.

Secretary—Grace Orndorff, Newman Hall, Austin, Tex.

Treasurer—Chester Rowell, T. U. Sta., Box 1957, Austin 12, Tex.

Present officers of the Alpha Sigma Chapter include: President, Willard Lewis; Vice-President, Shirley Scott; Secretary, Grace Orndorff; Treasurer, Chester Rowell; Historian, Louise Painter; Reporter, Herbert Polinard. The present faculty sponsors are Dr. Harriet Frizzell, Dr. Orville Wyss, and Dr. W. Gordon Whaley.

Peachie McDonald, former President, is now doing further work at the Northwestern University. Her hard work on behalf of this Chapter during its formative year was most important, and will long be remembered.

Sixteen new members were initiated into this chapter during the summer months. Osmond Philip Breland (Ph. D., Indiana University, 1936, in Entomology) was initiated as a faculty member. Those receiving off-campus active memberships were Jeannot N. Stern (Ph.D., University of Berlin, in Plant Pathology), Michael J. D. White,

(D.Sc., University of London, 1940, in Genetics), Professor Antonio Hernandez Corzo of the University of Nuevo Leon, Mexico, Luisa Ochoa de Ruiz Casteneda (D.D.S., University of Mexico, 1934), and Faustino Miranda (D.C., University of Madrid, 1929). The initiations of Prof. Hernandez, Da. Casteneda, and Dr. Miranda were conducted in Mexico this summer by Dr. Fred A. Barkley and Dr. Arthur I. Ortenburger, members of the National Council, and were the first initiations to be held outside the United States. Those initiated as Student members were Sr. Carlos Perez Zelaya, Mrs. Beulah Smith Evans, Wanda Ruth Meredith, Effie Boon, William Russell Smith, Herbert Lawrence Polinard, Harold Paul Gentry, Wise Sing Yee, Oscar Theodore Walle, and Judd Hamner Oualline.

The December issue of TASCA, monthly publication of the Texas Collegiate Academy of Science, will be edited by this chapter.

A number of the members of Alpha Sigma Chapter are now planning to attend the annual meeting of the Texas Academy of Science in Dallas, December 13 and 14. This will be the fiftieth anniversary of that group.

HERBERT L. POLINARD,

Reporter.



Book Reviews—New Books

Except for the signed reviews, the thumbnail sketches of current biological literature appearing in this section are not meant to be exhaustive or deeply critical. They aim to survey the rapidly growing field of biology. Naturally these reviews represent the candid opinions of various readers not necessarily those of the National Council, nor even those of the Editor.

DEVELOPMENTAL ANATOMY, AREY, 5th Edition, W. B. Saunders-Philadelphia and London. 1946. Price \$7.00.

A complete revision which unfolds the developmental story by giving recent contributions to the formative course of any individual's life. Corrections have been made to conform with information which has been established during the past few years. New illustrations have been added. The book is well worth reading for the wealth of material on general development. The cuts of the various illustrations are excellent. A great help to the student of Embryology, because the organization has increased the number of chapters due to the regrouping of some of the material which has made it easier to understand.

GENERAL BACTERIOLOGY LABORATORY MANUAL by L. S. McCLUNG. W. B. Saunders Company, Philadelphia. 1946. 106 pages. Price \$1.25.

This manual is a simple introduction into the basic principles of bacteriology. Among the studies included are the morphology and manner of grouping of common bacteria, study of molds, algae, and yeast. Sterilization is also emphasized along with bacterial filtration technique, negative straining, Gram stain, effect of pH of substrate on growth and many exercises necessary for the proper understanding of the many phases of bacteriology.

The instructions for each exercise are brief, but give enough details of the steps involved so that no one cannot misunderstand what is to be done. The spaces provided for records of results are ample as they do not entail the use of long formal laboratory reports. This permits the student to have an opportunity to study the results

and attempt to determine how important they are.

The material is so arranged that it can be used to conform with different laboratory schedules and permit the student to have a definite time of observation.

GOETHE'S BOTANY. *The Metamorphosis of Plants (1790) and Goethe's Ode to Nature (1872). With an introduction and translation by Agnes Arber. Chronica Botanica, Vol. 10, No. 2—Summer 1946. Price \$2.00. Chronica Botanica Co., Waltham, Mass.*

An extremely interesting issue. It contains an excellent introduction, which gives a clear picture of Goethe as a man with a mental life unexampled in its many-sidedness. The opinions of people concerning Goethe's ability as a scientist are discussed. Included with these thoughts are those of Goethe himself, who thought his work in natural science was not a mere side issue to his career as a poet, but was a real scientific work. His trip into Italy gave him a sight of flora, both wild and cultivated, which set in motion, a train of ideas, that dominated his idea of the plant world for the remainder of his life. He never isolated any of his thinking, but kept the whole of his mental and psychical equipment bent toward synthesis. He knew analysis was essential, but he did not employ it. The author after her analysis of Goethe concludes "that Goethe was a great biologist, who, in the long run, overstepped the bounds of science."

A translation is given of Goethe's "Attempt to Interpret the Metamorphosis of Plants." Photographs of some of Goethe's work are included. Following this translation is one dealing

with "The Fragment" afterwards known as *Die Natur*. The original text is also given. An unusual summing of Goethe as a scientist.

HUMAN HEREDITY by GATES. *The Macmillan Company, New York, New York. 2 vols. 1946. Price \$15.00.*

Human heredity has developed since 1923. The present work is an outgrowth of *Heredity in Man* published around 1929. The material is presented from a medical and biological viewpoint rather than from the standpoint of heredity alone. Various abnormalities, the uncontrolled growth—known as cancer, animal genetics and plant genetics have been cited to reveal conditions found in man. Also included are tissue culture, biochemistry and embryology, which show the nature of abnormalities. In most books on heredity the inherited conditions known as dominant, recessive, or sex-linked have been used, but in this work the new character such as "lack of penetrance" has been recognized. The author has tried to show in different families the genes for a particular condition and how they represent a "sliding scale" of values.

After reading the volumes one feels that he can agree with the author that heredity in man is a rapidly developing field and that a work such as this will necessarily be used as a reference. However, some people are so gifted that they can take such a book and make an excellent text of the contents.

The illustrations and bibliography are adequate to point the way for anyone interested in doing further study on the subject. The topics discussed have in most cases been fully treated. The examples make very clear pictures of the various conditions described.

LABORATORY MANUAL OF ANATOMY AND PHYSIOLOGY by NELLIE D. MILLARD and MARY JANE C. SHOWERS. *W. B. Saunders Company, Philadelphia, Pa. 1946.*

This manual is accompanied by an outline for teachers which includes a list of laboratory equipment, specimens and other material needed for the suc-

cessful operation of a course designed to cover thirty-two hour-laboratory periods, for a course of Anatomy and Physiology. The material is so arranged and selected that direct comparisons may be made between laboratory animals and the human body where it is not practical to have human specimens on hand. An excellent work for the teaching of laboratory work to students of nursing who are pursuing the study of Anatomy and Physiology.

NEW HUMAN EMBRYOLOGY by BRADLEY M. PATTEN. *Blakiston, Philadelphia, 1946. Price \$7.00. 1366 Drawings and Photographs grouped as 446 illustrations. 53 in Color.*

The drawings, photographs and charts make this book a "must" for every student of Anatomy. They depict the various stages in developmental anatomy so clearly that the reader knows exactly what is meant. The chart outlining one generation in the history of the gametes, and the germ plasm from which they are derived, as well as the chart on tracing the origin of all the organs back to the three primary germ layers are of great value for the teacher of any anatomy course. They show definitely what is meant, and will help all students to a better understanding of both of these subjects.

The material presents a picture to the student, which should help him retain the information without having to practically memorize facts. The functional relations are interspersed with descriptions of developmental morphology. This is a wise choice as structural plan can be shown from the functional standpoint. The Bibliography contains many references to all subjects discussed. The list will help any one to enlarge his knowledge of any subject, if he is not completely satisfied with the discussion and illustrations presented.

NOTES ON MICROSCOPICAL TECHNIQUE FOR ZOOLOGISTS by C. F. A. PANTIN. *Cambridge, at the University Press; New York, The Macmillan Company, 1946. Price \$1.50.*

This small volume outlines the most useful microtechniques in the exper-

ience of the Staff of the Department of Zoology at Cambridge University. It is written specifically for advanced students with brief outlines of useful techniques supplemented by references to other publications giving more detailed accounts. The most commendable feature of the book is that it is brief and includes concise outlines of the techniques found to be useful without reference to those of less value.

J. T. SELF

PERSONAL HYGIENE APPLIED by JESSE FEIRING WILLIAMS. *8th Edition.* W. B. Saunders Company, Philadelphia, 1946. Price \$2.50.

Health is defined in a broad sense. It is pointed out that "health for health's sake" is an unsatisfactory doctrine to follow and that we should consider the health of a whole child rather than individual aspect of health. Reasons are given for accepting this broader definition of health. These lead gradually into a discussion of health problems and the response of the individual to all sorts of situations. This naturally brings up the question as to the age at which an individual's hygiene education should begin. Attitudes are explained and their effect upon the different organs of the body are pointed out. How should we behave? Explanations are given as to the development of personality. How does a person become timid, courageous, or selfish?

This general explanation is followed by the scientific explanation to show that no matter how fine ideals may be they cannot overcome an infected kidney, lung, or heart.

The author has succeeded in showing that health cannot exist unless we live in the proper way.

The text can be used by people in all walks of life because it is written in a simple language that leads on from point to point. If a point is missed in the reading the questions at the end of each chapter bring one to the realization that he has missed some fact that should have been noted.

PURE CULTURES OF ALGAE, E. G. PRINGSHEIM, Cambridge University Press, 1946. The Macmillan Company, New York, 1946. \$1.75.

This record of Professor Pringsheim's experiences in the cultivation of algae over the last thirty-five years will be welcomed by all students of the morphology and physiology of the algae. Many of the previous general works on this subject have been compilations of the literature with lesser contributions based on personal experiment by the authors. Professor Pringsheim has based the major part of his text on his own laboratory experiences at Prague and, more recently, in England.

The author does not minimize the difficulties encountered in algal culture and records many problems still unsolved. Among the latter are the exact mineral requirement of many species, the unknown factors contributing to the beneficial effect of soil or soil extracts, and the problem of optimal illumination.

Professor Pringsheim's achievements in this field are attested by his success in maintaining pure cultures over periods of years and indeed, in making such cultures available to scientific workers generally. The advantages of the culture technique are clearly set forth.

Students of the algae will find many applications for the information contained in this useful and stimulating book.

E. O. HUGHES

TEXTBOOK OF BIOCHEMISTRY by HARROW. *4th Edition.* W. B. Saunders, Philadelphia, 1946. Price \$4.25.

The changes between this and the first edition have brought the subject of Biochemistry up-to-date. Care has been taken to place improvements where they are necessary. A new chapter on solutions has been added to the appendix. There one also can find the evidence for the structures of cholesterol as well as the synthesis of thiamine, androsterone, testosterone, a possible method for testing the aging process, and the isolation of Adrenotropic hormone.

Additions have been made to the sections on niacine, pyridoxine, antibiotics, p-aminobenzoic acid to sulfanilamide, gastric analysis, gallstones and jaundice.

It is also interesting to note that more material has been added to the section on the conversion of glycogen to lactic acid and the oxidation of carbohydrates. These are only a few of the many additions that have been made.

The references to be found at the end of each chapter have been carefully chosen so that they, as well as, the text itself can be easily understood, by the student of Biochemistry.



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